

CLAIMS

1. A composite comprising: a substrate and a coating deposited on said substrate, the coating being deposited by **flame or plasma spraying at atmospheric pressure**, the thickness of the coating being at least 5 mm, more preferably greater than 8mm, the coating comprising metal oxides **and the deposited coating comprising the addition of a noble metal to increase thermal conductivity of the coating.**
2. A composite comprising: a substrate and a coating deposited on said substrate, the coating being deposited by **flame or plasma spraying at atmospheric pressure**, the thickness of the coating being at least 5 mm, more preferably greater than 8mm, the coating comprising a superconductor precursor and at least 10% of the coating is in a superconductive phase **as deposited.**
3. The composite according to claim 1, wherein the coating is a superconductive precursor and least 10% of the coating is in a superconductive phase **as deposited.**
4. The composite according to claim 1, wherein the noble metal is silver.
5. The composite according to claim 4, wherein up to 30% silver is included in the metal oxides.
6. The composite according to any of claims 1 to 5, wherein the composite is a target for a sputtering magnetron.
7. The composite according to claim 6, wherein the target is cylindrical.
8. The composite in accordance with any previous claim, wherein the coating has

a thermal conductivity of between 1 and 5 $\text{Wm}^{-1}\text{K}^{-1}$.

9. The composite in accordance with any previous claim, wherein the thermal conductivity of the composite or the target through the substrate and the coating
5 is in the range 25 to 125 $\text{Wm}^{-1}\text{K}^{-1}$.

10. The composite in accordance with any previous claim, wherein the coating has an electrical resistivity of lower than $15 \times 10^{-6} \text{ Ohm.m}$, more preferably lower than 10×10^{-6} and most preferably less than $5 \times 10^{-6} \text{ Ohm.m}$.

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11. A method of depositing by **flame or plasma spraying at atmospheric pressure** a layer onto a substrate, the layer having a thickness of at least 5 mm, **more preferably greater than 8mm**, the coating comprising metal oxides, **the method including the step of depositing an additional noble metal with the**
15 **coating to increase thermal conductivity of the coating.**

12. A method of depositing by **flame or plasma spraying at atmospheric pressure** a layer onto a substrate, the layer having a thickness of at least 5 mm, **more preferably greater than 8mm**, the coating comprising a superconductive
20 precursor and at least 10% of the layer being in a superconductive phase as deposited.

13. The method according to claim 11, wherein the noble metal is silver.

25 14. The method according to claim 13, wherein up to 30% silver is included in the material to be sprayed.

15. The method according to any of claims 11 to 14, wherein the spraying step includes spraying a material through a spraying head, the material being in the

form of a powder, a slurry or a solution.

16. The method according to any of claims 11 to 15, further including the step of cooling the substrate.

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17. The method according to claim 16, wherein the cooling is with a cryogenic liquid.

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